

Atty Dkt. No.: YAMA-008
USSN: 09/695,531

REMARKS

Claim 1 has been amended for clarity, to correct a minor typographical error and to specify that the composition includes *Bacillus subtilis* and at least one of the previously specified microbial species and that the microbial species have been proliferated on a complex substrate. Support for this amendment can be found, e.g., at page 18, lines 14 and original Claim 9. Claims 10 and 14 have also been amended to specify that the microbial species have been proliferated on a complex substrate. Support for these amendments may be found, e.g., in the specification for example at page 9, lines 19-21 and in original claim 16. Claim 14 has also been amended to correct a minor typographical error and to specify that the plurality of microbial species includes *Bacillus subtilis* and at least one of: *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffinicus*, *Pseudomonas fluorescens* and *Comomonas acidovorans*.

Claims 9 and 16 have been cancelled.

No new matter is added. Accordingly, the Applicant respectfully requests entry of the amendments.

In view of the above amendments and following remarks, the Examiner is respectfully request to withdraw the rejections and allow Claims 1 and 3-8, 10-15 and 17-21, the only claims pending in this application.

REJECTION UNDER 35 U.S.C. §101

Claims 1, 3- 21 have been rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter which the Examiner asserts includes naturally occurring microbial and fungal species. Although the Applicant does not acquiesce to the rejection, the Applicant wishes to expedite prosecution of this application. Accordingly, independent Claims 1, 10 and 14, and the claims that depend therefrom, have been amended to specify that the microbial species have been proliferated on a complex substrate. In view of these amendments to Claims 1, 10 and 14, the Applicant respectfully requests that this rejection be withdrawn.

REJECTION UNDER 35 U.S.C. §103(a)

Claims 1, 3-9 and 21 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Reinbergen (WO 97/31879) in view of Zuckerman et al. (US 5,378,460). The Applicant respectfully submits that Claims 1, 3-9 and 21 are patentable over Reinbergen in view of Zuckerman et al.

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As noted above, Claim 1, and Claims 3-8 and 21 that depend therefrom (Claim 9 has been cancelled), specify compositions that include *Bacillus subtilis* and at least one of *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffineus*, *Pseudomonas fluorescens* and *Comomonas acidovorans*. However, Reinbergen does not teach or suggest such a composition. More specifically, Reinbergen does not teach or suggest a composition that specifically includes *Bacillus subtilis* and at least one of *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffineus*, *Pseudomonas fluorescens* and *Comomonas acidovorans*. In fact, while Reinbergen teaches the use of *Bacillus subtilis* in certain instances, Reinbergen does not even mention any of the other microbial species specified in the claims, i.e., Reinbergen does not mention *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffineus*, *Pseudomonas fluorescens* and *Comomonas acidovorans*. Accordingly, not only does Reinbergen fail to teach a composition that includes *Bacillus subtilis* and at least one of *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffineus*, *Pseudomonas fluorescens* and *Comomonas acidovorans*, but Reinbergen also fails to even suggest such a composition as Reinbergen does not even mention *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffineus*, *Pseudomonas fluorescens* and *Comomonas acidovorans*.

In making this rejection, the Examiner cites to Zuckerman et al. for teaching the use of *B. thuringiensis*. However, Zuckerman et al. is directed to *B. thuringiensis* (Bt) strains and spores and derivatives or mutants of Bt strains (see for example col. 2 lines 31-32 and col. 3, lines 65-66). However, Zuckerman et al. do not teach or even suggest Bt in combination with any other microbial species, let alone in combination with *Bacillus subtilis*.

Accordingly, there would be no reason to modify the invention of Reinbergen with respect to a composition that includes *Bacillus subtilis* with the teachings of Zuckerman et al. with respect to *Bacillus thuringiensis*, as neither of these references teaches or even suggests a composition includes both *Bacillus subtilis* and *Bacillus thuringiensis* and in fact while each reference teaches the use of one of the microbes, each fails to even mention the other microbe. As such, there is no motivation in any of the references, or in any of the art of record, to modify the teachings of Reinbergen to make a composition as claimed by the Applicant by selectively choosing one of the microorganisms taught in Reinbergen (*Bacillus subtilis*) and selectively omitting all the other microorganisms taught in Reinbergen, and combining the selected microorganism with the teachings of Zuckerman et al. with respect to *Bacillus thuringiensis* in spite of the fact that Reinbergen does not even mention using *Bacillus thuringiensis* and the Examiner has not provided a reference or combination of references that teaches a composition of *Bacillus subtilis* and *Bacillus thuringiensis* or a composition of *Bacillus subtilis*

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and any of the other specified microbial species for that matter. Accordingly, for at least these reasons, a proper *prima facie* case of obviousness cannot be made. As such, the Applicants respectfully request that this rejection be withdrawn.

Claims 10-13, 14 and 17-19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Reinbergen (WO 97/31879). The Applicant respectfully submits that Claims 10-13, 14 and 17-19 are patentable over Reinbergen. In regards to Claims 10-12 which recite a composition having a plurality of distinct microbial species made up of at least 5 different bacterial species and at least 2 different fungal species, Reinbergen does not teach or suggest a compositions that must have at least 5 different bacterial species and at least 2 different fungal species, each of which possesses all of the claimed limitations. Furthermore, none of the specific examples of compositions taught in Reinbergen include at least 5 different bacterial species and at least 2 different fungal species. In fact, Reinbergen does not even teach or suggest a composition that includes at least 5 different bacterial species and at least 2 different fungal species.

While the Examiner acknowledges that Reinbergen does not disclose a composition containing at least 5 different bacterial species and at least 2 different fungal species, the Examiner asserts that it would have been obvious to one of ordinary skill in the art of horticulture/agriculture to modify the composition of Reinbergen by making it with at least 5 different bacterial species and at least 2 different fungal species- each having the properties as claimed in the subject claims. The Applicant has requested that the Examiner cite to a reference of record or provide an affidavit by the that would support the Examiner's position that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Reinbergen by selecting from the plurality of microorganisms taught at least 5 different bacterial species and at least 2 different fungal species- each having the properties as claimed in the subject claims. While the Examiner has not cited a reference of record or provided an affidavit that supports the position that it would be obvious to modify the composition of Reinbergen by making it with at least 5 different bacterial species and at least 2 different fungal species all having the properties specified in the subject claims, the Examiner has addressed the issue in the Examiner's response to the Applicant's previous arguments. In addressing the Applicant's previous arguments, the Examiner asserts that from Reinbergen's general teachings regarding that the "amount of spores of microorganisms added to solutions if the invention is not fixed per se, and necessarily is dependent upon the degree of soil and/or plant remediation required, the number and identity of microorganism species needed in the formulation", it is "apparent that Reinbergen anticipates mixing

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species with the motivation to achieve the needed results.” The Examiner continues that in view of the goal of Reinbergen to “rejuvenate soil and promote the growth of beneficial soil microorganisms”, it would be obvious to make a composition that includes at least 5 different bacterial species and at least 2 different fungal species.

However, while the Examiner has pointed to teachings of Reinbergen directed to (1) the amount of microorganisms dependant upon the number and identity thereof, and (2) mixing species, the Examiner has provided nothing to support an assertion that Reinbergen teaches or even suggests a composition of at least 5 different bacterial species and at least 2 different fungal species, let alone at least 5 different bacterial species and at least 2 different fungal species wherein each is antagonistic against a plurality of microbial pathogens, non-pathogenic towards plants and animals, is tolerant of high temperatures, grows rapidly and has been proliferated on a complex substrate as claimed in the subject claims. As noted in the Applicant’s previous response not all of the microorganisms taught in Reinbergen satisfy all of these claimed features.

More specifically, what Reinbergen does teach is a composition that includes microorganisms, and Reinbergen discloses exemplary microorganisms, i.e., bacteria, fungus and yeast, that may be included in the composition (page 5, lines 11-16; page 9, line 14 – page 10, line 5). Reinbergen also teaches that the composition may include a mixture of microorganisms. However, nowhere in the disclosure of Reinbergen is it taught that the composition is made-up of a plurality of microorganisms and that each microorganism that makes up the composition is antagonistic against microbe pathogens, non-pathogenic toward plant and animals, tolerant of high temperatures, grows rapidly, and is proliferated on a complex substrate or is it taught or suggested to choose such microorganisms from the microorganisms disclosed. Furthermore, nowhere does Reinbergen teach that the composition includes at least five different bacterial species and at least two different fungal species, nor is it taught to choose at least five different bacterial species and at least two fungal species from the microorganisms disclosed. As described in the Applicant’s previous response to the Office Action dated January 31, 2002, Reinbergen also teaches yeast species and other microorganisms which do not possess the claimed characteristics. Accordingly, nowhere in the disclosure of Reinbergen is it taught to select at least five different bacterial species that possesses all the claimed properties and at least two different fungal species that possesses all the claimed properties from the multitude of microorganisms provided by Reinbergen from the list of microorganisms taught in Reinbergen, which list includes microorganisms that do not possess all of the claimed properties.

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Furthermore, the Applicant submits that preferred compositions of Reinbergen also do not include at least five different bacterial species at least two different fungal species. Accordingly, the Applicant directs the Examiner to the Examples section of Reinbergen. Example 1 teaches a solution 1 that includes (1) the yeast species *Saccharomyces cerevisiae* (page 11, lines 15-16), and (2) a mixture of *Bacillus subtilis*, *Bacillus licheniformis* and *Bacillus megaterium*. In other words, Reinbergen not only teaches the use of a microorganism that do not possess all the claimed properties, but Reinbergen also fails to specify the requisite number of respective microorganisms- at least five different bacterial species and at least two different fungal species. Example 1 also teaches a solution 2 that is made up of the yeast species *Saccharomyces cerevisiae* and the bacterial species *Bacillus* (page 12, lines 1-2), i.e., solution 2 also includes a microorganism that does not possess all the claimed properties and does not include at least five different bacterial species and at least two different fungal species. Furthermore, Example 1 teaches a solution 3 that includes the yeast species *Saccharomyces cerevisiae* (page 12, line 7) and the bacterial species *Bacillus* such that solution 3 also includes a microorganism that does not possess all the claimed properties and fails to teach at least five different bacterial species and at least two different fungal species. Likewise, Example 2 teaches solutions that include the yeast/bacterial solution of Example 1 (page 13, lines 8-9), and thus teaches the use of microorganisms that do not possess all the claimed properties. Furthermore, the solution of Example 2 omits at least one fungal species, where the inclusion of such fungal species is claimed in Claim 1. Example 4 teaches the use of the solution taught in Example 1, i.e., a solution that includes a yeast species and does not include at least five different bacterial species and at least two different fungal species. (Example 3 did not disclose the specific microorganisms in the composition.) Therefore, at least three of the four examples disclosed in Reinbergen teach compositions having microorganisms that do not possess all of the claimed properties, i.e., include the yeast species *Saccharomyces cerevisiae*. Furthermore, at least three of the four examples of Reinbergen do not include at least five different bacterial species and at least two different fungal species.

Accordingly, nowhere does Reinbergen teach or suggest to pick and choose from the multitude of microorganisms disclosed in Reinbergen those microorganisms that possess all of the claimed properties, while omitting those microorganisms that are disclosed that do not possess all of the claimed properties. Furthermore, nowhere in the disclosure of Reinbergen is it taught to select at least five different bacterial species and at least two different fungal species from the multitude of microorganisms disclosed, let alone to select at least five different bacterial species and at least two different fungal species from the list of microorganisms that specifically possess all of the claimed properties. In fact,

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preferred compositions taught by Reinbergen not only omit fungal species all together, as well as at least five different bacterial species, but they include microorganisms that do not possess all of the claimed properties. As such, Reinbergen does not teach or even suggest all of the claimed limitations, namely a composition that includes at least five different bacterial species and at least two different fungal species wherein each microbial species is (a) antagonistic against a plurality of microbial pathogens; (b) non-pathogenic towards plants and animals; (c) is tolerant of high temperatures; (d) grows rapidly; and (e) is proliferated on a complex substrate.

The Examiner has stated that it is obvious to one of skill in the art in the horticultural/agricultural to make a composition with at least five different bacterial species and at least two different fungal species from the teachings of Reinbergen. However, the Examiner has not provided support for this assertion except to point to generalized teachings of Reinbergen directed to compositions that omit mention of any particular number or mixture of microorganisms and/or mixture or even any mention that the microorganisms of a composition must possess the properties as claimed in these claims. As described in detail above, Reinbergen does not teach or suggest a composition of at least five different bacterial species and at least two different fungal species and as such does not teach a composition of at least five different bacterial species and at least two different fungal species wherein each microbial species possesses the claimed properties. Accordingly, motivation to modify the Reinbergen invention to include all of the claimed limitation cannot be found in the cited reference as Reinbergen does not even make any mention of a composition of at least five different bacterial species and at least two different fungal species.

The Applicant respectfully submits that the Examiner has used the Applicant's own disclosure to force grounds of rejection in this case. The Examiner simply has not provided a reference or combination of references that would suggest a composition as claimed in the subject claims. Rather, the Applicant respectfully submits that the Examiner has relied heavily upon hindsight gained from reading the present disclosure in concluding that the present invention would have been obvious. Accordingly, the Examiner has clearly failed to make a *prima facie* case of obviousness with respect to the above claims for at least this reason.

The Applicant respectfully submits that Claims 13 and 14, and Claims 17-19 that depend therefrom, are also patentable over Reinbergen. Claim 13 includes the composition of Claim 1 and Claim 14 has been amended to specify that the plurality of microbial species include *Bacillus subtilis* and at least one of *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffinicus*, *Pseudomonas fluorescens* and *Comomonas acidovorans* (i.e., a composition according to Claim 1 as referred to in the

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preamble). Accordingly, the Applicant respectfully submits that these claims are patentable over Reinbergen for reasons analogous to those described above with regard to Claim, i.e., Reinbergen fails to teach or suggest a composition that includes *Bacillus subtilis* and at least one of *Bacillus thuringiensis*, *Curtobacterium* sp., *Arthrobacter paraffinicus*, *Pseudomonas fluorescens* and *Comamonas acidovorans* and in fact while Reinbergen mentions *Bacillus subtilis*, Reinbergen does not make mention any of the specified other microbial species.

Furthermore, Claims 10 and 14, and Claims 17-19 that depend therefrom, have been amended to specify that each member of the plurality is proliferated on a complex substrate. However, Reinbergen does not teach or suggest the proliferation of microorganisms on a complex substrate and as such does not make obvious these claims for at least this reason.

Accordingly, for at least the reasons described above, the Applicant respectfully requests that this rejection be withdrawn.

Claims 15 and 20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Reinbergen. As these claims depend from Claim 14, the Applicant respectfully submits that Claims 15 and 20 are patentable over Reinbergen for at least reasons analogous to those described above with respect to Claim 14. Accordingly, the Applicant respectfully requests that this rejection be withdrawn.

Claim 16 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Reinbergen in view of Kosanke et al. (US 5,695,541). The Applicant respectfully submits that Claim 16 has been cancelled. Accordingly, the Applicant respectfully requests that the rejection of Claim 16 under 35 U.S.C. §103(a) over Reinbergen in view of Kosanke et al. be withdrawn.

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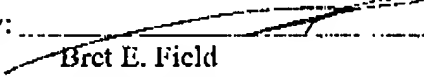
CONCLUSION

In view of the above amendments and remarks, this application is considered to be in good and proper form for allowance and the Examiner is respectfully requested to pass this application to issue.

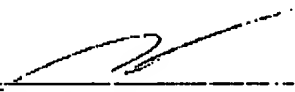
The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-0815, reference no. YAMA-008.

Respectfully submitted,
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